



MORBIDITY AND MORTALITY WEEKLY REPORT

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*Epidemiologic Notes and Reports***Illness and Death Due to Environmental Heat —
Georgia and St. Louis, Missouri, 1983**

Much of the eastern, central, and southern United States experienced higher-than-normal temperatures during the summer of 1983. St. Louis, Missouri, and the state of Georgia were among the areas affected by the heat wave (1). Health officials from these areas noted an increased incidence of death and illness attributable to heat during this time.

In St. Louis, there were 348 cases of heat-related illness (HRI)* and 35 heat-related deaths (HRD)† between July 11 and August 15. Of those who died, 23 (65.7%) were elderly (aged 60 years and over), 27 (77.2%) were female, and 23 (65.0%) were black. Heat-related mortality rates were 22.2 per 100,000 persons for the elderly and 3.43/100,000 for those under 60 years of age. The rates were 11.1/100,000 for blacks and 5.0/100,000 for whites; 5.0/100,000 for females and 3.9/100,000 for males.

In Georgia, 804 cases of HRI and 35 HRDs were reported, a substantial increase from the 96 HRIs and three HRDs in 1982, when average temperatures for July and August were 4–5 F below those in 1983. Patients over 60 years of age were the most severely affected, accounting for 20 (57.0%) of the deaths and 147 (26.0%) of the HRIs throughout the state.‡ The mortality rate for the over-60 population was 3.2/100,000 persons and 0.3/100,000 for the population aged 60 and under. Sixteen (45.7%) of the deaths were among blacks, giving them a mortality rate (11.1/100,000) about twice that of whites (0.5/100,000). Males had a mortality rate of 0.8/100,000 and females a rate of 0.5/100,000.

The heat-related deaths occurred primarily during short periods of especially hot weather. Over half of the Georgia HRDs occurred between July 19 and July 28, when Atlanta reported mean daily temperatures¶ between 34.4 C and 37.2 C (94.0 F and 99.0 F), an average of 6 F above normal for that time period (2). In St. Louis, 89.0% of the HRDs occurred between July 19 and July 25 when mean daily temperatures averaged 31.7 C (89.0 F), 10 F above normal (3).

Reported by W Hope, ScD, St. Louis Health Div, HD Donnell, Jr, MD, State Epidemiologist, Missouri Dept of Social Svcs; TW McKinley, MPH, RK Sikes, DVM, State Epidemiologist, Georgia Dept of Human Resources; Special Studies Br, Chronic Diseases Div, Center for Environmental Health, CDC.

*Defined as any hospital admission with a body temperature higher than 40.6 C (105 F).

†Defined as any death related to excessive heat, either directly or indirectly through exacerbation of a preexisting medical condition.

‡Includes only individuals for whom age was reported.

¶Defined as the arithmetic mean of maximum and minimum temperatures of a given day.

Illness and Death Due to Environmental Heat — Continued

Editorial Note: Most deaths directly attributable to heat result from heatstroke. This is a condition characterized by a substantial elevation in core body temperature, generally to 40.5 C (105.0 F) or higher, with temperatures above 43.3 C (110.0 F) not uncommon. The patient will appear confused, and may progress to stupor and unconsciousness as the body temperature rises. Anhidrosis (absent sweating) may be noted, but many heatstroke patients perspire profusely. Treatment is directed toward the rapid lowering of body temperature followed by intensive, supportive care. Heatstroke is often fatal, even when treatment is optimal (4).

Age-specific heatstroke rates for the summer of 1983 in St. Louis and Georgia reveal the marked predisposition of the elderly to develop heatstroke, a finding that is consistent with previous observations (5). Older persons regulate their thermal environment less well than young people (6). In addition, the elderly have a greater frequency of chronic illness and are more likely to use medications which may predispose to heatstroke (7). Thus, the elderly should be considered a high-risk group for heatstroke during periods of sustained hot weather.

Both St. Louis and Georgia data show blacks to have had higher heatstroke rates than whites. While this finding has been previously reported, differences in socioeconomic status (SES) confound comparisons of heatstroke rates for blacks and whites. Attempts to assess the separate contributions of race and SES to heatstroke risk have been largely unsuccessful (5). In St. Louis, the rate of HRD was greatest among females, while the reverse was true in Georgia. These differences may result, in part, from the different patterns of heat exposure in an urban area (St. Louis) and in a state with a substantial rural population (Georgia).

Persons confined to bed or otherwise unable to take care of themselves are at high risk from the heat, as are alcoholics and persons taking neuroleptic or anticholinergic drugs. Reducing physical activity, drinking extra liquids, and increasing time spent in air-conditioned places (even if there is no home air conditioner) all offer substantial protection from heatstroke (7). Fans decrease in cooling efficacy as ambient temperatures rise, and have been found to increase heat stress in very hot weather (8). Thus, the distribution of fans may not be an appropriate public health measure during extreme heat.

During heat waves, heatstroke prevention efforts should focus on those at greatest risk (e.g., the poor, elderly, or chronically ill). Persons at risk should be advised to reduce physical activity, consume extra liquids, and, if possible, seek shelter in an air-conditioned environment for at least part of the day. Although adequate salt intake with meals is important, salt tablets are of doubtful benefit in the prevention of heatstroke, and may actually harm persons with certain preexisting illnesses (e.g., heart failure) (7). Heatstroke rates are increased among alcoholics; moderate alcohol intake, however, may not predispose a person to heatstroke who is not otherwise at risk.

References

1. National Oceanic and Atmospheric Administration. Climate impact assessment: United States. U.S. Department of Commerce. July 1983.
2. National Weather Service Observation Station, William B. Hartsfield Atlanta International Airport, Atlanta, Georgia.
3. National Weather Service Observation Station, St. Louis International Airport, St. Louis, Missouri.
4. Hart GR, Anderson RJ, Crumpler CP, Shulkin A, Reed G, Knochel JP. Epidemic classical heat stroke: clinical characteristics and course of 28 patients. *Medicine* 1982;61:189-97.
5. Jones TS, Liang AP, Kilbourne EM, et al. Morbidity and mortality associated with the July 1980 heat wave in St. Louis and Kansas City, Missouri. *JAMA* 1982;247:3327-31.
6. Collins KJ, Exton-Smith AN, Doré C. Urban hypothermia: preferred temperature and thermal perception in old age. *Br Med J* 1981;282:175-7.
7. Kilbourne EM, Choi K, Jones TS, Thacker SB. Risk factors for heatstroke. A case-control study. *JAMA* 1982;247:3332-6.
8. Lee DHK. Seventy-five years of searching for a heat index. *Environ Res* 1980;22:331-56.

International Notes

Quarantine Measures

The following changes should be made in the "Supplement—Health Information for International Travel," *MMWR*, Vol. 32, 1983, on the table "Vaccinations Required and Information on Malaria Risk, by Country":

Last Column: **Areas with known chloroquine-resistant *P. falciparum*.**

BANGLADESH

On page 20, change to: All malarious areas.

BURUNDI

On page 25, change to: All malarious areas.

COMOROS

On page 27, delete footnote 7.

ECUADOR

On page 29, change to: All malarious areas.

INDIA

On page 36, before footnote reference, insert Uttar Pradesh.

After footnote reference, insert Nicobar and Andaman Islands.

INDONESIA

On page 38, change to: All malarious areas.

KENYA

On page 39, delete footnote 18.

MADAGASCAR

On page 41, delete footnote 21.

MALAWI

On page 42, change to: Isolated reports.

RWANDA

On page 50, change to: All malarious areas.

UGANDA

On page 56, delete footnote 35.

VANUATU

On page 56, change to: All malarious areas.

ZAIRE

On page 58, change to: Isolated reports in northeastern provinces.

ZAMBIA

On page 58, change to: Northern provinces.

Third Column: **Risk in urban areas**

HONDURAS

On page 35, change to: Yes (except in the central highlands).

Dengue — Americas, 1983

After the relatively high level of epidemic dengue activity in the Americas in 1981 and 1982, most countries reported only low-level or sporadic transmission in 1983 (1,2). Notable exceptions were Colombia, El Salvador, and Mexico, all of which experienced large epidemics in 1982. All had significant, although somewhat smaller, outbreaks in 1983 as well.

Dengue - Continued

Colombia reported 4,977 cases in 1983, compared with over 6,000 cases in 1982. Two serotypes, dengue 1 and dengue 4, were isolated from patients' sera in 1983, and both were probably responsible for some outbreaks. Additionally, serologic data obtained by the arbovirus laboratory, Instituto Nacional de Salud, Bogota, Colombia, suggest that dengue 2 and dengue 3 may still be transmitted in some areas of the country; if so, Colombia is the first country in the region to have simultaneous transmission of all four dengue serotypes. In El Salvador, 3,243 cases were reported in 1983, compared with over 5,000 in 1982. The 1983 epidemic began in late June and early July in San Salvador. By late August, cases were reported from most areas of the country, but the largest outbreak occurred in the eastern region bordering Honduras. Although the serotypes of all outbreaks were not known, dengue 4 virus was isolated by CDC from patients in San Salvador. The epidemics in Mexico have previously been reported (3,4).

Barbados, Haiti, Jamaica, and Trinidad experienced small dengue outbreaks in 1983. In Jamaica, dengue 2 predominated, although serologic evidence from U.S. travelers suggested that dengue 4 was still active as well. Dry weather was probably responsible for limiting transmission. In Haiti, the outbreak was apparently limited to the city of Belladere and the surround-

(Continued on page 333)

TABLE I. Summary—cases specified notifiable diseases, United States

Disease	23rd Week Ending			Cumulative, 23rd Week Ending		
	June 9, 1984	June 11, 1983	Median 1979-1983	June 9, 1984	June 11, 1983	Median 1979-1983
Acquired Immunodeficiency Syndrome (AIDS)	72	N	N	1,678	N	N
Asaetic meningitis	122	147	105	1,718	1,922	1,653
Encephalitis: Primary (arthropod-borne & unsp.)	11	18	18	356	397	343
Post-infectious	6	2	4	38	48	48
Genorhiza: Civilian	14,021	16,095	17,692	346,675	387,282	412,210
Military	412	472	577	8,840	10,646	12,103
Hepatitis: Type A	421	379	445	9,566	9,961	11,172
Type B	419	434	386	10,334	9,871	8,599
Non A, Non B	63	56	N	1,591	1,481	N
Unspecified	121	183	182	2,610	3,211	4,413
Legionellosis	9	9	N	238	301	N
Leprosy	8	7	3	103	118	88
Malaria	14	15	26	310	302	413
Measles: Total*	61	60	170	1,484	918	2,086
Indigenous	59	50	N	1,335	755	N
Imported	2	10	N	149	163	N
Meningococcal infections: Total	64	68	62	1,465	1,521	1,521
Civilian	64	68	60	1,461	1,505	1,505
Military	-	-	-	4	16	10
Mumps	68	106	176	1,635	1,938	3,551
Pertussis	26	21	18	873	765	482
Rubella (German measles)	16	96	96	371	605	1,496
Syphilis (Primary & Secondary): Civilian	384	589	525	12,057	14,226	13,214
Military	7	4	4	152	204	166
Toxic Shock syndrome	7	7	N	178	210	N
Tuberculosis	479	536	570	9,235	9,808	11,499
Tularemia	0	11	8	47	85	65
Typhoid fever	7	3	8	132	144	169
Typhus fever; tick-borne (RMSF)	48	24	59	146	156	223
Rabies, animal	115	120	122	2,204	2,926	2,926

TABLE II. Notifiable diseases of low frequency, United States

	Cum 1984		Cum 1984
Anthrax	1	Plague	7
Botulism: Foodborne	0	Poliomyelitis: Total	1
Infant (Calif. 2)	44	Paralytic	1
Other	2	Paritacosis (Calif. 1)	32
Brucellosis (Calif. 2)	45	Rabies, human	-
Cholera	3	Tetanus (Tex. 1, Calif. 1)	15
Congenital rubella syndrome	-	Trichinosis (W.J. 7, Ohio 1)	35
Diphtheria	-	Typhus fever; flea-borne (endemic, murine)	6
Leptospirosis	8		

*Two of the 61 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending
June 9, 1984 and June 11, 1983 (23rd Week)

Reporting Area	AIDS	Aseptic Meningi- tis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral, by type)				Leprosy	
			Primary	Post-in- fectious			A	B	NA,NB	Unspeci- fied		
	Cum. 1984	1984	Cum. 1984	Cum. 1984	Cum. 1984	Cum. 1983	1984	1984	1984	1984	1984	Cum. 1984
UNITED STATES	1,078	122	356	38	346,675	387,282	421	419	63	121	9	103
NEW ENGLAND	59	8	24	1	10,243	9,696	11	24	3	30	3	5
Maine	-	-	-	-	390	517	1	2	-	-	-	-
N.H.	1	1	4	-	275	276	-	2	1	-	-	-
Vt.	-	-	2	-	168	177	-	-	-	-	-	-
Mass.	35	3	12	-	4,054	4,316	3	13	-	28	1	4
R.I.	4	-	-	-	667	532	-	-	-	-	-	1
Conn.	19	4	6	1	4,689	3,878	7	6	2	2	2	-
MID ATLANTIC	789	10	51	4	48,169	49,661	76	82	6	14	-	16
Upstate N.Y.	67	5	18	3	7,296	7,573	11	34	3	4	-	2
N.Y. City	570	4	3	-	20,349	20,421	41	12	-	5	-	14
N.J.	115	-	17	-	8,001	9,536	11	27	2	5	-	-
Pa.	37	1	13	1	12,523	12,131	12	9	1	-	-	-
E.N. CENTRAL	74	10	76	8	43,413	54,786	32	43	9	3	3	6
Ohio	9	4	29	4	12,082	13,989	7	9	4	1	3	2
Ind.	12	2	12	-	5,487	6,235	1	4	1	1	-	-
Ill.	39	-	11	3	6,744	15,294	5	6	3	1	-	2
Mich.	11	4	19	-	13,667	14,539	19	24	1	-	-	2
Wis.	3	-	5	1	5,453	4,729	-	-	-	-	-	-
W.N. CENTRAL	14	5	11	-	16,420	18,217	6	16	4	-	-	1
Minn.	4	2	3	-	2,404	2,566	-	5	-	-	-	-
Iowa	-	-	5	-	1,901	2,019	3	1	1	-	-	1
Mo.	7	1	1	-	7,706	8,859	-	3	1	-	-	-
N. Dak.	-	-	-	-	166	172	-	-	-	-	-	-
S. Dak.	1	-	-	-	449	505	1	-	-	-	-	-
Nebr.	-	-	1	-	1,175	1,084	-	3	2	-	-	-
Kans.	2	2	1	-	2,619	3,012	2	4	-	-	-	-
S. ATLANTIC	218	30	69	9	89,302	98,993	45	89	21	11	-	5
Del.	3	-	1	-	1,555	1,807	1	-	-	-	-	-
Md.	17	4	16	-	10,123	12,558	2	16	7	2	-	-
D.C.	30	-	-	-	6,441	6,827	-	2	-	-	-	1
Va.	14	6	17	4	9,300	8,290	1	16	2	2	-	3
W. Va.	3	-	4	-	1,064	1,028	-	1	1	2	-	-
N.C.	4	3	14	4	14,337	14,282	16	2	2	1	-	-
S.C.	4	1	2	-	8,429	9,365	-	10	-	-	-	-
Ga.	20	6	2	-	17,591	21,469	2	19	-	-	-	-
Fla.	123	10	13	1	21,462	23,367	23	23	9	4	-	1
E.S. CENTRAL	13	15	15	2	29,609	32,571	13	22	4	1	-	-
Ky.	7	3	2	-	3,684	3,863	5	3	1	-	-	-
Tenn.	3	2	2	-	12,328	13,252	5	6	1	1	-	-
Ala.	2	7	10	2	9,562	10,077	2	7	2	-	-	-
Miss.	1	3	1	-	4,035	5,379	1	6	-	-	-	-
W.S. CENTRAL	77	13	24	3	48,283	54,162	60	32	2	38	1	5
Ark.	-	-	-	2	4,223	4,090	-	-	-	1	-	-
La.	8	-	2	-	11,005	9,514	5	5	1	2	-	-
Okla.	4	-	7	1	5,222	6,421	5	3	-	2	1	-
Tex.	65	13	15	-	27,813	34,137	50	24	1	33	-	5
MOUNTAIN	21	2	11	3	11,201	11,925	36	9	3	1	1	7
Mont.	-	-	-	-	510	508	1	-	-	-	1	-
Idaho	-	-	-	-	521	553	2	1	-	-	-	-
Wyo.	1	-	-	-	341	312	4	-	-	-	-	-
Colo.	12	2	6	-	3,214	3,336	11	3	1	-	-	-
N. Mex.	-	-	-	-	1,272	1,444	12	-	1	-	-	-
Ariz.	6	-	2	1	3,022	3,312	-	1	-	-	-	5
Utah	1	-	3	2	568	589	4	1	1	1	-	1
Nev.	1	-	-	-	1,753	1,871	2	3	-	-	-	1
PACIFIC	413	29	75	6	50,065	57,271	143	102	11	23	1	58
Wash.	20	1	3	-	3,400	4,231	2	8	-	2	-	3
Oreg.	3	-	-	-	3,032	2,903	16	5	-	-	-	1
Calif.	386	23	70	6	41,537	47,576	124	89	11	21	1	39
Alaska	-	-	-	-	1,244	1,393	1	-	-	-	-	-
Hawaii	4	5	2	-	842	1,168	-	-	-	-	-	15
Guam	-	U	-	-	89	85	U	U	U	U	U	-
P.R.	26	3	-	1	1,523	1,393	1	7	-	-	-	-
V.I.	-	-	-	-	184	124	-	-	-	-	-	-
Pac. Trust Terr.	-	U	-	-	-	-	U	U	U	U	U	-

N: Not notifiable

U: Unavailable

TABLE III. (Cont'd). Cases of specified notifiable diseases, United States, weeks ending

June 9, 1984 and June 11, 1983 (23rd Week)

Reporting Area	Malaria	Measles (Rubella)						Meningo- coccal infections	Mumps		Pertussis			Rubella		
		Indigenous			Imported *											
		Cum. 1984	1984	Cum. 1984	1984	Cum. 1984	Cum. 1983		Cum. 1984	1984	Cum. 1984	1984	Cum. 1984	Cum. 1983	1984	Cum. 1984
UNITED STATES	310	59	1,335	2	149	918	1,465	68	1,635	26	873	765	18	371	605	
NEW ENGLAND	26	2	85	-	7	12	93	1	47	1	12	27	1	27	6	
Maine	-	-	-	-	-	-	1	1	14	-	-	-	-	1	-	
N.H.	-	-	26	-	3	3	6	-	5	-	2	8	-	-	2	
Vt.	2	-	2	-	2	-	22	-	3	-	8	3	-	-	3	
Mass.	15	-	48	-	-	2	29	-	13	1	1	16	1	26	3	
R.I.	3	-	-	-	-	-	9	-	4	-	1	3	-	-	-	
Conn.	6	2	9	-	2	7	26	-	8	-	-	-	-	-	-	
MID ATLANTIC	47	2	71	1	17	43	239	7	203	4	63	215	7	109	114	
Upstate N.Y.	14	1	16	1†	7	6	90	1	41	2	41	63	3	83	18	
N.Y. City	12	1	62	-	1	33	33	-	7	1	3	28	3	23	82	
N.J.	13	-	3	-	3	1	60	1	120	1	4	11	-	2	3	
Pa.	8	-	-	-	4	3	66	5	36	-	15	113	1	1	11	
E.N. CENTRAL	23	12	444	-	63	504	227	23	624	8	238	192	5	56	88	
Ohio	6	-	1	-	2	46	82	18	257	8	45	57	-	2	1	
Ind.	-	-	2	-	1	331	31	-	33	-	159	14	1	2	15	
Ill.	6	-	119	-	1	122	45	-	143	-	12	91	3	29	37	
Mich.	5	12	321	-	54	5	43	5	149	-	12	11	1	16	13	
Wis.	6	-	1	-	5	-	26	-	42	-	10	19	-	7	22	
W.N. CENTRAL	9	-	-	1	2	1	95	1	75	2	75	51	-	21	29	
Minn.	1	-	-	1†	2	1	17	-	2	-	7	19	-	1	5	
Iowa	1	-	-	-	-	-	17	-	17	-	3	5	-	-	-	
Mo.	6	-	-	-	-	-	28	-	6	-	12	8	-	-	-	
N. Dak.	-	-	-	-	-	-	1	-	1	-	-	1	-	3	-	
S. Dak.	-	-	-	-	-	-	6	-	-	1	3	2	-	-	-	
Nebr.	-	-	-	-	-	-	7	1	3	-	2	-	-	-	-	
Kans.	1	-	-	-	-	-	19	-	46	1	48	16	-	17	24	
S. ATLANTIC	57	1	10	-	12	172	323	6	121	1	56	107	2	20	67	
Del.	3	-	-	-	-	-	3	-	2	-	-	-	-	-	-	
Md.	13	-	4	-	5	4	25	3	25	-	3	17	-	1	1	
D.C.	1	-	-	-	-	-	4	-	-	-	-	-	-	-	-	
Va.	14	-	1	-	1	22	37	2	10	-	7	37	-	-	1	
W. Va.	1	-	-	-	-	-	4	1	24	-	6	4	-	-	-	
N.C.	4	-	-	-	-	-	44	-	14	-	17	5	-	-	6	
S.C.	1	-	-	-	-	4	30	-	1	-	1	7	-	-	-	
Ge.	4	-	-	-	-	6	67	-	18	-	2	24	-	2	10	
Fla.	18	1	5	-	6	136	109	-	29	1	20	13	2	17	49	
E.S. CENTRAL	2	-	1	-	2	5	58	3	34	-	5	6	-	5	8	
Ky.	-	-	1	-	-	1	4	2	8	-	1	2	-	1	7	
Tenn.	-	-	-	-	2	-	20	-	10	-	2	2	-	-	-	
Ala.	2	-	-	-	-	4	23	1	5	-	-	1	-	1	1	
Miss.	-	-	-	-	-	-	11	-	11	-	2	1	-	3	-	
W.S. CENTRAL	28	28	319	-	14	65	168	3	93	6	224	67	-	13	80	
Ark.	-	-	-	-	-	10	24	-	4	-	11	4	-	3	-	
La.	4	-	-	-	-	20	36	-	-	-	3	2	-	-	9	
Okl.	3	-	6	-	-	1	22	N	N	5	200	42	-	-	-	
Tex.	21	28	313	-	14	34	87	3	89	1	10	19	-	10	71	
MOUNTAIN	12	-	79	-	10	2	52	4	179	2	61	73	-	10	18	
Mont.	1	-	-	-	-	-	1	-	3	1	17	1	-	-	2	
Idaho	2	-	-	-	-	-	6	-	7	-	2	2	-	1	7	
Wyo.	-	-	-	-	-	-	2	-	1	-	3	4	-	-	1	
Colo.	1	-	-	-	-	2	19	-	12	-	21	44	-	2	-	
N. Mex.	-	-	56	-	8	-	7	N	5	-	6	6	-	-	-	
Ariz.	6	-	-	-	-	-	13	4	150	-	8	9	-	-	4	
Utah	2	-	23	-	2	-	4	-	5	1	3	7	-	5	3	
Nev.	-	-	-	-	-	-	-	-	1	-	2	-	-	-	1	
PACIFIC	106	14	326	-	22	114	210	20	259	2	139	27	1	110	193	
Wash.	3	9	89	-	-	4	27	3	27	-	17	2	-	1	6	
Oreg.	3	-	-	-	-	7	33	N	N	-	9	5	-	-	11	
Calif.	97	5	231	-	19	102	143	17	218	1	49	20	1	107	176	
Alaska	-	-	-	-	-	-	6	-	4	-	-	-	-	-	-	
Hawaii	3	-	6	-	3	1	1	-	10	1	64	-	-	2	-	
Guam	-	U	83	U	2	2	1	U	5	U	-	-	U	1	-	
P.R.	2	-	-	-	-	76	3	1	79	-	-	8	-	5	3	
V.I.	-	-	-	-	-	5	-	-	3	-	-	-	-	-	1	
Pac. Trust Terr.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-	

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International ‡Out-of-state

TABLE III. (Cont'd). Cases of specified notifiable diseases, United States, weeks ending
June 9, 1984 and June 11, 1983 (23rd Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic- shock Syndrome	Tuberculosis		Tula- remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1984	Cum. 1983		Cum. 1984	Cum. 1983				
UNITED STATES	12,057	14,226	7	9,235	9,808	47	132	146	2,204
NEW ENGLAND	250	308	2	261	261	1	6	-	13
Maine	2	5	1	12	17	-	-	-	8
N.H.	3	12	-	20	23	-	-	-	-
Vt.	1	1	1	3	1	-	-	-	-
Mass.	149	190	-	139	137	1	5	-	4
R.I.	8	10	-	23	20	-	-	-	-
Conn.	87	87	-	64	63	-	1	-	1
MID ATLANTIC	1,077	1,824	1	1,073	1,778	-	18	1	132
Upstate N.Y.	118	149	-	272	294	-	7	1	5
N.Y. City	1,040	1,061	-	685	739	-	4	-	-
N.J.	307	380	-	365	373	-	3	-	2
Pa.	212	254	1	351	372	-	4	-	125
E.N. CENTRAL	466	784	-	1,225	1,234	-	18	7	90
Ohio	116	201	-	246	199	-	3	7	8
Ind.	64	71	-	128	90	-	2	-	10
Ill.	60	381	-	503	549	-	8	-	42
Mich.	188	98	-	275	327	-	2	-	6
Wis.	38	35	-	73	69	-	3	-	24
W.N. CENTRAL	201	174	-	255	323	15	5	17	358
Minn.	58	73	-	43	61	-	2	-	32
Iowa	10	5	-	33	31	-	-	-	70
Mo.	102	62	-	115	171	15	2	3	32
N. Dak.	4	1	-	7	3	-	-	-	69
S. Dak.	2	8	-	9	22	-	-	1	93
Nebr.	9	11	-	15	8	-	1	-	26
Kans.	16	14	-	33	27	-	1	13	36
S. ATLANTIC	3,652	3,696	-	1,954	1,940	3	14	48	691
Del.	12	17	-	23	14	-	-	-	1
Md.	233	239	-	235	145	-	-	3	405
D.C.	139	157	-	65	78	-	5	-	-
Va.	190	253	-	188	193	-	4	8	124
W. Va.	10	14	-	68	71	-	-	2	16
N.C.	360	350	-	292	280	1	1	19	8
S.C.	342	230	-	240	176	-	1	9	19
Ge.	639	695	-	261	366	2	-	6	70
Fla.	1,727	1,741	-	584	637	-	3	1	48
E.S. CENTRAL	736	970	-	859	939	-	5	17	115
Ky.	50	57	-	192	237	-	2	2	28
Tenn.	206	277	-	272	284	-	2	9	52
Ala.	267	390	-	262	238	-	1	4	35
Miss.	213	246	-	133	180	-	-	2	-
W.S. CENTRAL	2,884	3,711	-	1,019	1,150	15	7	50	475
Ark.	85	92	-	111	120	11	-	9	54
La.	548	770	-	136	191	3	1	1	21
Okl.	77	106	-	111	126	1	1	28	57
Tex.	2,174	2,743	-	661	713	-	5	12	343
MOUNTAIN	290	325	-	225	273	9	9	4	85
Mont.	1	5	-	11	22	-	1	4	50
Idaho	12	6	-	14	14	3	-	-	-
Wyo.	3	6	-	-	5	-	-	-	-
Colo.	63	71	-	22	26	2	2	-	6
N. Mex.	39	105	-	45	49	-	2	-	9
Ariz.	119	74	-	99	121	2	3	-	19
Utah	9	10	-	18	23	2	-	-	-
Nev.	44	48	-	16	13	-	1	-	1
PACIFIC	1,901	2,434	4	1,764	1,910	4	50	2	245
Wash.	48	83	-	90	94	-	1	-	1
Oreg.	59	43	-	71	83	2	1	1	1
Calif.	1,756	2,270	4	1,481	1,589	2	44	-	237
Alaska	3	7	-	28	25	-	1	1	6
Hawaii	35	31	-	94	119	-	3	-	-
Guam	-	-	U	5	3	-	-	-	-
P.R.	389	400	-	195	221	-	3	-	26
V.I.	6	8	-	2	1	-	-	-	-
Pac. Trust Terr.	-	-	U	-	-	-	-	-	-

U Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending
June 9, 1984 (23rd Week Ending)

Reporting Area	All Causes, By Age (Years)						P&I [†] Total	Reporting Area	All Causes, By Age (Years)						P&I [†] Total
	All Ages	≥65	45-64	25-44	1-24	<1			All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	664	448	148	36	11	23	49	S. ATLANTIC	1,344	820	303	131	38	52	60
Boston, Mass.	130	123	45	18	3	12	14	Atlanta, Ga.	144	82	36	14	4	8	2
Bridgport, Conn.	54	39	10	1	1	3	4	Baltimore, Md.	254	152	61	22	10	9	6
Cambridge, Mass.	28	23	4	1	-	-	4	Charlotte, N.C.	105	64	20	10	5	6	6
Fall River, Mass.	17	12	4	1	-	-	1	Jacksonville, Fla.	103	67	21	11	1	3	10
Hartford, Conn.	44	25	12	4	1	2	-	Miami, Fla.	137	79	34	14	4	6	3
Lowell, Mass.	25	19	4	1	1	-	3	Norfolk, Va.	47	22	14	6	2	3	5
Lynn, Mass.	15	10	4	1	-	-	-	Richmond, Va.	78	40	22	9	3	4	5
New Bedford, Mass.	25	18	7	-	-	-	-	Savannah, Ga.	42	26	11	3	-	2	4
New Haven, Conn.	29	24	4	1	-	-	-	St. Petersburg, Fla.	113	90	19	4	-	6	6
Providence, R.I.	89	80	20	4	3	2	9	Tampa, Fla.	57	38	8	7	3	4	4
Somerville, Mass.	7	4	2	1	-	-	-	Washington, D.C.	193	112	42	24	8	7	7
Springfield, Mass.	38	26	10	1	-	1	8	Wilmington, Del.	71	48	15	7	-	1	3
Waterbury, Conn.	41	29	8	2	2	-	2								
Worcester, Mass.	53	34	14	2	-	3	4								
MID. ATLANTIC	2,566	1,658	605	162	67	74	109	E.S. CENTRAL	782	499	188	82	18	15	36
Albany, N.Y.	55	34	11	3	3	4	1	Birmingham, Ala.	108	70	19	11	2	6	2
Albany, N.Y.	21	14	7	-	-	-	-	Chattanooga, Tenn.	60	41	14	3	-	2	4
Buffalo, N.Y.	133	78	42	3	5	5	14	Knoxville, Tenn.	73	54	11	6	2	-	8
Camden, N.J.	43	24	14	2	1	2	2	Louisville, Ky.	98	70	21	2	1	2	5
Elizabeth, N.J.	28	17	6	3	2	-	1	Memphis, Tenn.	205	122	56	20	6	1	12
Erie, Pa.†	39	28	9	-	1	1	1	Mobile, Ala.	51	34	13	4	-	-	2
Jersey City, N.J.	54	36	14	3	1	-	1	Montgomery, Ala.	47	31	6	7	3	-	1
N.Y. City, N.Y.	1,377	877	324	108	42	26	45	Nashville, Tenn.	142	77	48	9	4	4	2
Newark, N.J.	58	26	20	4	5	3	2								
Peterborough, Pa.†	28	21	8	-	-	1	1	W.S. CENTRAL	1,204	684	308	80	74	48	47
Philadelphia, Pa.†	300	188	67	19	3	23	19	Austin, Tex.	51	38	10	-	1	2	8
Pittsburgh, Pa.†	79	55	18	3	-	3	3	Baton Rouge, La.	42	21	13	3	4	1	5
Reading, Pa.	28	22	6	-	-	1	1	Corpus Christi, Tex.	36	25	8	2	1	2	2
Rochester, N.Y.	128	95	21	6	2	4	10	Dallas, Tex.	199	108	54	15	13	9	6
Schenectady, N.Y.	22	18	3	1	-	-	-	El Paso, Tex.	44	28	8	2	5	1	1
Scranton, Pa.†	20	16	4	-	-	-	2	Fort Worth, Tex.	201	58	21	9	8	5	5
Syracuse, N.Y.	90	60	22	6	1	1	2	Houston, Tex.	200	95	57	24	18	6	4
Trenton, N.J.	16	14	1	-	-	-	-	Little Rock, Ark.	69	45	14	2	3	5	3
Utica, N.Y.	19	14	5	-	-	-	1	New Orleans, La.	143	75	43	11	6	8	-
Yonkers, N.Y.	28	21	5	-	1	1	3	San Antonio, Tex.	159	97	41	10	6	5	5
								Shreveport, La.	46	32	9	2	1	2	1
								Tulsa, Okla.	114	62	32	10	8	2	7
E.N. CENTRAL	2,267	1,474	528	143	51	70	78	MOUNTAIN	591	372	123	54	21	21	25
Akron, Ohio	86	60	16	3	5	2	-	Albuquerque, N.Mex.	70	34	27	5	3	1	5
Canton, Ohio	38	27	10	1	-	-	4	Colorado Springs, Colo.	32	23	2	4	1	2	5
Chicago, Ill.	423	261	104	34	8	16	7	Denver, Colo.	91	57	17	11	2	4	3
Cincinnati, Ohio	151	102	32	10	4	3	11	Las Vegas, Nev.	71	35	20	9	3	4	1
Cleveland, Ohio	179	104	52	13	3	7	4	Ogden, Utah	30	25	4	-	1	-	2
Columbus, Ohio	134	80	35	9	5	4	4	Phoenix, Ariz.	113	74	22	11	2	4	1
Dayton, Ohio	124	79	36	5	3	1	2	Pueblo, Colo.	29	17	5	4	3	-	2
Detroit, Mich.	271	161	72	22	5	11	6	Salt Lake City, Utah	47	34	6	3	1	3	-
Evansville, Ind.	43	33	8	-	-	2	-	Tucson, Ariz.	108	73	20	7	5	3	6
Fort Wayne, Ind.	46	35	8	3	1	1	4								
Gary, Ind.	13	6	3	3	1	-	-	PACIFIC	1,939	1,285	390	135	68	56	108
Grand Rapids, Mich.	73	51	16	2	1	3	5	Berkeley, Calif.	15	9	4	1	1	-	1
Indianapolis, Ind.	166	107	43	12	1	5	2	Fresno, Calif.	67	55	8	2	2	-	3
Madison, Wis.	39	22	11	4	-	2	3	Glendale, Calif.	27	21	5	-	1	-	2
Milwaukee, Wis.	140	100	29	7	1	3	5	Honolulu, Hawaii	62	40	18	2	-	2	5
Peoria, Ill.†	51	47	-	1	1	3	-	Long Beach, Calif.	91	68	14	3	4	2	4
Rockford, Ill.	44	28	12	3	1	-	-	Los Angeles, Calif.	512	304	109	54	27	13	10
South Bend, Ind.	45	32	7	2	2	2	1	Oakland, Calif.	83	43	23	7	7	3	6
Toledo, Ohio	135	95	22	7	7	4	11	Pasadena, Calif.	37	23	11	1	-	2	1
Youngstown, Ohio	62	44	12	2	2	2	1	Portland, Oreg.	134	100	23	2	4	5	6
								Sacramento, Calif.	129	82	37	6	2	3	20
W.N. CENTRAL	723	496	136	37	24	30	21	San Diego, Calif.	172	112	24	14	5	9	16
Des Moines, Iowa	81	52	16	4	7	2	2	San Francisco, Calif.	152	105	24	15	1	7	4
Duluth, Minn.	26	18	5	2	-	1	2	San Jose, Calif.	186	131	32	12	4	7	11
Kansas City, Kans.	37	26	4	3	2	2	1	Seattle, Wash.	168	114	32	12	7	3	8
Kansas City, Mo.	108	76	21	3	4	4	5	Spokane, Wash.	65	53	7	3	2	-	6
Lincoln, Neb.	23	18	4	1	-	-	1	Tacoma, Wash.	39	25	11	2	1	-	3
Minneapolis, Minn.	93	68	15	8	-	4	4								
Omaha, Neb.	89	63	20	-	3	3	7	TOTAL	12,080 ^{††}	7,734	2,729	850	372	389	531
St. Louis, Mo.	145	99	31	5	5	5	1								
St. Paul, Minn.	70	44	11	9	-	6	2								
Wichita, Kans.	51	32	9	4	3	3	-								

* Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

^{††} Pneumonia and influenza

† Because of changes in reporting methods in these 4 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†† Total includes unknown ages.

†† Data not available. Figures are estimates based on average of past 4 weeks.

TABLE V. Years of potential life lost, deaths, and death rates, by cause of death, and estimated number of physician contacts, by principal diagnosis, United States

Cause of morbidity or mortality (Ninth Revision ICD, 1975)	Years of potential life lost before age 65 by persons dying in 1982*†	Estimated mortality January 1984		Estimated number of physician contacts January 1984*‡
		Number§	Annual Rate/100,000§	
ALL CAUSES (TOTAL)	9,429,000	184,600	925.3	104,600,000
Accidents and adverse effects (E800-E949)	2,367,000	7,560	37.9	5,500,000
Malignant neoplasms (140-208)	1,809,000	38,980	195.4	1,900,000
Diseases of heart (390-398, 402, 404-428)	1,586,000	71,520	358.5	6,100,000
Suicides, homicides (E950-E978)	1,314,000	3,890	19.5	—
Cerebrovascular diseases (430-438)	256,000	15,020	75.3	800,000
Chronic liver disease and cirrhosis (571)	252,000	2,410	12.1	100,000
Pneumonia and influenza (480-487)	118,000	5,890	29.5	1,600,000
Chronic obstructive pulmonary diseases and allied conditions (490-498)	114,000	5,890	29.5	2,100,000
Diabetes mellitus (250)	106,000	3,070	15.4	2,900,000
Prenatal care*				2,400,000
Infant mortality*††		3,500	11.3 / 1,000 live births	

*For details of calculation, see footnotes for Table V, *MMWR* 1984;33:2.

†Years of potential life lost for persons between 1 year and 65 years old at the time of death are derived from the number of deaths in each age category as reported by the National Center for Health Statistics, *Monthly Vital Statistics Report (MVSR)*, Vol. 31, No. 13, October 5, 1983.

§National Center for Health Statistics, *Monthly Vital Statistics Report (MVSR)*, Vol. 33, No. 2, May 23, 1984, pp. 8-9.

¶*IMS America National Disease and Therapeutic Index (NDTI)*, Monthly Report, January 1984, Section III.

††*MVSR* Vol. 33, No. 1, April 26, 1984, p. 1.

Dengue — Continued

ing area on the border with the Dominican Republic. Dengue 1 virus was isolated, confirming earlier serologic evidence of this serotype occurring among medical missionaries working in Haiti. Despite the epidemic dengue activity in Haiti, relatively few cases were confirmed in the Dominican Republic in 1983. Dengue 4 activity remained high in Trinidad throughout 1983, with peak transmission from July through October. This serotype was isolated by the Caribbean Epidemiology Centre laboratory from 115 cases, compared with only four dengue 2 isolates in 1983. In Barbados, dengue 4 was active early in the year, but no isolations were made from April through September. Another virus isolate was made in October, but travel history on the patient was not available.

Following 2 consecutive years with major epidemics (dengue 1 in 1981 and dengue 4 in

Dengue — Continued

1982), Puerto Rico experienced little confirmed dengue activity in 1983. Dengue 4 virus was isolated only once in 1983 (January), but serologic evidence confirmed sporadic transmission of that serotype throughout the year.

Overall, 25,216 dengue cases were reported in the Americas in 1983, compared with approximately 50,000 in 1982 (Table 1). As in 1982, however, all countries probably underreported dengue, and some countries failed to report at all. For example, Barbados, Haiti, Jamaica, and Trinidad all probably had many more cases of dengue than were reported (Table 1). On the other hand, many of the more than 2,522 cases reported in Puerto Rico were probably not really dengue.

Dengue 4 was the predominant virus in the region again in 1983, but dengue 2 also had a wide distribution (Figure 1). There was renewed activity of dengue 2 in the western part of the region (Jamaica and Mexico). Dengue 1 transmission was confirmed only in Colombia, Haiti, Honduras, and Mexico. However, all four types were introduced into the region, as evidenced in the United States (Table 1, Figure 1).

Clinically, dengue illness in the Americas in 1983 was of the classical type. There were apparently no cases of confirmed dengue hemorrhagic fever (DHF) in the region. However, health authorities in Colombia reported several cases of fatal hemorrhagic disease that were not confirmed as either dengue or yellow fever. Confirmed cases of dengue associated with encephalitic signs were observed in the Dominican Republic.

TABLE 1. Reported dengue cases by country — the Americas, 1983*

Country	Month of last reported case	Total for year	Virus serotype
Anguilla	September	2	
Antigua	November	1	
Barbados	November	62	4
Belize	December	19	
Colombia	June	4,977	1, 4
Dominica	November	2	
Dominican Republic	October	394	4
El Salvador	October	3,243	4
French Guiana	†	Sporadic	
Grenada	December	4	
Guadeloupe	†	Sporadic	
Guatemala	October	2	
Haiti	November	92	1
Honduras	November	701	1
Jamaica	October	5	2, 4
Martinique	†	Sporadic	
Mexico	December	12,967	1, 2, & 4
Puerto Rico	December	2,522	4
Trinidad and Tobago	December	119	2, 4
U.S.§	December	104	1, 2, 3, 4
Total		25,216	

*Information provided by: Pan American Health Organization, Washington, D.C.; Caribbean Epidemiology Centre, Port-of-Spain, Trinidad; Pasteur Institute, Cayenne, French Guiana; Instituto de Salubridad y Enfermedades Tropicales, Mexico; San Juan Laboratories, Division of Vector-Borne Viral Diseases, Center for Infectious Diseases, CDC.

†Unknown.

§Imported cases only.

Dengue — Continued

Reported by Pan American Health Organization, Washington, DC; Caribbean Epidemiology Centre, Port-of-Spain, Trinidad; Dengue Br, Div of Vector-Borne Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: The frequency of epidemic dengue in the Americas has increased greatly in the past decade. Regional epidemics caused by dengue 1 and dengue 4 have occurred since 1977. Additionally, a major epidemic of DHF caused by dengue 2 occurred in Cuba in 1981, where over 10,000 patients were hospitalized with DHF, and 159 deaths occurred (case-fatality ratio of 1.6%) (5). The increased dengue activity in the region, along with transmission of multiple serotypes in many countries, is similar to the early stages of the establishment of DHF as a major health problem in Southeast Asia in the early 1960s.

This severe disease is not presently widespread in the Americas. Except for Cuba, only sporadic cases of confirmed fatal dengue have occurred or been reported from other countries of the region (Jamaica, Puerto Rico, Surinam, and Trinidad).

Two major factors potentially responsible for the increased epidemic activity are increased frequency of air travel and lack of effective mosquito control in most countries of the region. The result is repeated introduction of new dengue strains and serotypes into areas where *Aedes aegypti* coexists with humans. Prevention of epidemic dengue can best be achieved by improved surveillance and more effective public and private mosquito control efforts.

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FIGURE 1. Dengue — the Americas, 1983



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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: ATTN: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

Director, Centers for Disease Control
James O. Mason, M.D., Dr.P.H.
Director, Epidemiology Program Office
Carl W. Tyler, Jr., M.D.

Editor
Michael B. Gregg, M.D.
Assistant Editor
Karen L. Foster, M.A.

DEPARTMENT OF
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